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**Using the Income Statement for Management Decisions
By**

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Using the Income Statement for Management Decisions¹

Business success is sometimes measured by the amount of money earned during the year. The financial statement that is used to measure the amount of money earned is the Income Statement. Other names for this important accounting statement are profit and loss statement, operating statement, and income and expense statement.

The income statement provides a summary of business input and output in dollar terms. This summary details the income and expenses that occurred during a specified accounting period, usually the calendar year for farmers. The income statement offers a financial view of the value and cost of business production for the specified time period.

Preparing the Statement

While some would contend that an income statement consists of two parts, income and expenses, a more accurate summary of business input and output consists of seven major categories:

- Farm Business Receipts
- Change in Inventory Value of Crops, Livestock, and Accrued Income (Accounts Receivable)
- Farm Cash Operating Expenses
- Change in Inventory Value of Accrued Expense, Production Supply Expense, and Accrued Interest Expense
- Depreciation Expenses
- Gain or Loss on Sale of Farm Capital Assets
- Gain or Loss Due on Sale of Breeding Livestock

An income statement can be prepared using information that should be contained in the business records. Common sources of income statement information include the farm account book (or computer accounting program), and Internal Revenue Service (IRS) forms 1040F (*Farm Income and Expenses*) and 4797 (*Supplemental Schedule of Gains and Losses*). Preparing the income statement will also require using both the beginning and ending balance sheets for the period on which the income statement will be based.

¹ This information has been adapted for use in South Dakota from *Income Statement - A Financial Management Tool* by Larry Langemeier and Danny Klinefelter, RM5-6.0:9-98

Business Receipts

The principal source of income for most farms and ranches is the sale of livestock, grain and other farm products. Other sources of income include agricultural program payments, custom work and dividends, tax credits and refunds, crop insurance proceeds, and other miscellaneous income sources.

Other adjustments to make when calculating business receipts would be to not include proceeds from outstanding USDA marketing loans in cash income even if this would be reported as income for tax purposes. Grain under loan would not be counted since it would be included as ending crop inventory on the balance sheet. The result would be that this inventory would be counted twice in the calculation of net income if it were included in cash receipts as well. Also do not include sales of land, machinery, or other depreciable assets; loans received; or income from non-farm sources in income.

Adjustments to Income

Not all farm income is accounted for by cash sales. Changes in crop, livestock, and accrued income inventory values must be considered to determine the value of farm production and the true profitability in an accounting period. Livestock and crop inventories represent products purchased (such as feeder livestock) or products produced (such as wheat grown but not yet sold). The process of making adjustments to the calculations of business receipts is referred to as making **accrual** adjustments to income. Adjusting for inventory changes ensures that the value of business production is counted for in the year it is produced rather than the year it is sold.

Cash net farm income shows how much cash was available for purchasing capital assets, debt reduction, family living, and income taxes. However, net farm income, as calculated by the **accrual** or inventory method, represents the economic return to your contributions to the farm business: labor, management, and net worth in land and other farm assets. It is important to know both measures of income when analyzing the business.

If the value of crop, livestock, and accrued income inventory is greater at the end of the period than at the beginning, the increase in value is added to the specific farm business receipts. If the inventory value is less at the end of the period, the decrease in value is subtracted from the specific farm business receipts. If the total inventory value at the beginning of the period is equal to the value at the end of the period, then inventories have no effect on the net farm income.

Business Expenses

Just as the receipts for the business were calculated, business expenditures need to be accounted. Generally, all cash expenses involved in the operation of the business during the business year should be entered into the expense section of the income statement. Expenditures with benefits that usually expire within a year are operating expenses. Hired

labor, feed, chemicals and insurance are examples of cash operating expenses.

When accounting for expenditures for livestock purchases, expenditures for breeding livestock, as well as for market animals, would be included. There are some cautions to consider when determining the livestock expenditures. It is important not to include death loss of livestock as an expense. Death loss of livestock should be reflected automatically by a lower ending livestock inventory value. Income tax and Social Security tax payments are considered personal expenses and should not be included in the income statement, unless the statement is for an incorporated business. When accounting for debt payments, interest paid on all loans or contracts is a cash expense, but principal payments are not. The purchase of capital assets such as machinery and equipment would not be included in the income statement. Calculations for these expenditures are usually accounted for through depreciation. Land purchases also are excluded. Additionally, wages paid to family members are generally excluded in the income statement since these also are income to the family.

Adjustments to Expenses

Some cash expenses paid in one year may be for items not actually used until the following year. These include feed and supply inventories, prepaid expenses, and investments in growing crops. Changes in the inventory values of accrued expense, production supply expense, and accrued interest expense must be considered to determine total farm expense, and thus the true profitability in a period. Accrued expenses are expenses that are owed but not yet paid. Accrued expenses could also include obtaining and using items such as supplies and chemicals, but without extending the cash to have paid for them.

To account for these expenditures, subtract the value of these items as reported on the ending balance sheet from the corresponding value on the beginning balance sheet value to find the net adjustment. Other expenses may be incurred in one year but not paid until the following year or later, such as accrued interest, farm taxes due and other accounts payable. The inventory change in accrued interest expense must be added or subtracted from cash interest paid to obtain the total accrued interest expense for the accounting period. If the accrued expense inventory value is less at the beginning of the period, the value is added to farm cash expenses. If the accrued expense inventory value is greater at the beginning of the period, the value is subtracted from farm cash expenses.

For changes in production supply expense inventory values, the reverse is true. Production supply expense inventories include supplies, chemicals, seed and other inputs purchased but not yet used in the current year. If the production supply expense inventory value is greater at the beginning of the period, the value is added to the farm cash expenses. If the inventory value is less at the beginning of the period, the value is subtracted from the farm cash expenses.

Another expense to account for is depreciation, or the amount by which machinery, equipment, buildings, and other capital assets decline in value due to use and

obsolescence. When accounting for depreciation expenses, it may be easiest to use the depreciation deduction allowed on the income tax return. However, the depreciation allowance used for tax purposes may not be accurate for business management decisions. Tax accounting can allow for an accelerated depreciation deduction that may not accurately reflect the change in value of that asset for business purposes. Estimating depreciation can be a difficult task. A procedure of multiplying the market value of depreciable assets at the beginning of the year by a fixed rate, such as 10 percent, may simplify the task. A better, but still simplified approach would be to group similar items, such as machinery, and apply a rate of depreciation applicable to each group of depreciable assets.

Gain or Loss on Capital Assets

Revenue from the sale of farm capital assets such as real estate, buildings/improvements, and machinery/equipment is considered in determining net income. The sale price may be either more or less than the cost value (or basis) of the asset. The gain or loss on the sale of capital assets is equal to the sale revenue minus the book value, or remaining basis value (un-depreciated original cost), of the capital asset.

Sales of breeding livestock must also be accounted for, but is accounted for differently than for real estate, buildings/improvements, or machinery/equipment. There are two methods that can be used to account for the sale of breeding livestock. The first method would be to record the sales and purchases of breeding livestock as cash income and expenses, and adjust for changes in inventory. The second method would be to record the capital gains or losses when animals are sold and include depreciation of the breeding livestock as an expense. Either method can be used, but only method should be used; do not mix the two methods in any one year or across years.

Analysis of the Income Statement

The income statement is a progress report of the business. The first aspect of analyzing the income statement is to examine the net income or loss of the business as shown on the income statement prepared for the period of analysis. The net income or loss value calculated indicates the profitability of the business for that specific period of time that is being analyzed. Comparing income statements over a number of periods, usually the same length of time is used for each period, shows the trend in profitability. Net income averages for farms of similar size and type are sometimes available for comparison. Making such comparisons can help in evaluating the efficiency of the business.

Most farm families do a good job of keeping records of income and expenses for the purpose of filing income tax returns. Income figures from the tax return, however, may not accurately measure the economic performance of the farm. Consequently, today's successful business managers need to have a clear understanding of the purpose of an income statement, the information needed to prepare the statement, and the way in which it is summarized. A properly prepared income statement should be one financial statement used for business analysis.

Income Statement Example²

INCOME STATEMENT

CASH FARM INCOME		Quantity	Value	CASH FARM EXPENSE	
Bull Calves		41 head	2,947	Seed	6,681
Milk		1,907,324 lb.	235,171	Fertilizer	5,362
Cull breeding livestock			12,321	Crop chemicals	5,861
Direct & CC govt payments			3,524	Crop insurance	1,333
Livestock govt payments			20,980	Drying fuel	984
Patronage dividends, cash			1,583	Crop miscellaneous	732
Other farm income			2,855	Purchased feed	50,487
				Breeding fees	3,876
				Veterinary	8,543
				Supplies	13,287
				Livestock marketing	5,962
				Interest	13,769
				Fuel & oil	5,876
				Repairs	14,794
				Custom hire	1,936
				Hired labor	29,581
				Land rent	7,650
				Machinery & bldg leases	1,843
				Real estate taxes	1,231
				Farm insurance	3,790
				Utilities	5,536
				Miscellaneous	2,358
(C) Gross cash farm income			279,321	(D) Total cash farm expense	191,472
				(E) Net cash farm income	87,849

INVENTORY CHANGES		Crop & Feed	Market Livestock	Receivables & Other Income Items	Prepaid Expenses & Supplies	Payables & Accrued Expenses	Total
Ending Inventory		69,218	5,960	9,790	7,056	1,186	
Beginning Inventory	(-)	55,468	800	11,140	10,453	1,231	
(F) Inventory change	(=)	13,750	5,360	-1,350	-3,397	-45	14,348
(G) Net operating profit						(E+F)	102,197

DEPRECIATION AND OTHER CAPITAL ADJUSTMENTS		Breeding Livestock	Machinery & Vehicles	Buildings & Improvements	Other Assets	Total	
Ending inventory		123,800	105,591	65,708	19,458		
Capital sales	(+)	-	-	-	-		
Beginning inventory	(-)	119,400	104,982	69,167	18,865		
Capital purchases	(-)	-	12,342	-	-		
(H) Depreciation / cap adj	(=)	4,400	-11,733	-3,459	593	-10,199	
(I) Net farm income						(G+H)	91,998

² This example of an income statement is taken from the FINPACK financial planning and analysis software package used by SDSU Extension Economics and represents a hypothetical sample farm

Test Yourself on Using the Balance Sheet for Management Decisions³

Indicate whether each of the following statements is true (T) or false (F).

- T F 1. An income statement is a summary of revenues generated during a specified period, usually one year, and the expenses associated with generating those revenues, with the difference being net farm income.
- T F 2. Farm revenues consist of proceeds from current business operations and the gain or loss from the sale of farm real estate.
- T F 3. Net cash farm income includes inventory adjustments.
- T F 4. You can calculate net farm income from operations using cash accounting by subtracting depreciation from net cash farm income.
- T F 5. Depreciation is a cash expense.
- T F 6. Cash payments from government farm programs are considered farm revenue.
- T F 7. There are two categories of farm expenses on an income statement using accrual accounting. Those categories are cash operating expenses and non-cash expenses.
- T F 8. Cash outlays to purchase farm machinery are included on an income statement as a cash expense.
- T F 9. Net cash farm income is calculated by subtracting cash expenses during the period (including cash outlays for farm real estate) from gross cash farm revenues.
- T F 10. One use of an income statement is to help explain changes in owner equity.

³ These assessment exercises are taken from *Business Management in Agriculture*, a video tape based educational program. *Business Management in Agriculture* was financed and produced by the Cooperative Extension Service, United States Department of Agriculture, Washington D.C., and Farm Credit Bank of St. Paul, Minnesota.

Example Situation

Farmer Jones has gross cash farm revenue for the year totaling \$100,000. His cash farm expenses for the year equal \$70,000. His depreciation for the year equals \$20,000. The value of his grain inventory increased from the beginning to the end of the year by \$10,000. He also purchased a tractor for \$30,000 during the year and paid cash for it. Using only the above information, match the amount to the correct category. A letter can be used more than once, and some letters might not be used.

Write the letter of the correct answer below for each item.

- | | |
|--|--------------|
| _____ 11. Net cash farm income | A. \$20,000 |
| _____ 12. Net farm income from operations (accrual accounting) | B. \$10,000 |
| _____ 13. Net farm income from operations (cash accounting) | C. \$30,000 |
| _____ 14. Total expenses (cash accounting) | D. \$90,000 |
| _____ 15. Total expenses (accrual accounting) | E. \$120,000 |

Indicate whether each of the following statements is true (T) or false (F).

- T F 16. To prepare an income statement using accrual accounting, you need a beginning and ending balance sheet
- T F 17. An increase in the value of farm or ranch real estate not sold during the year should be included on the income statement as farm revenue when using accrual accounting.
- T F 18. Using accrual accounting, when the value of market livestock held for sale at the beginning of a period is less than the value at the end of that year, you should add the amount of the increase to cash revenues to calculate gross farm revenue.
- T F 19. Using accrual accounting, when the value of accrued interest on a beginning balance sheet is less than the amount on an ending balance sheet, you should add the amount of the increase to cash expenses and depreciation to calculate the amount of total expenses.
- T F 20. Using accrual accounting, when the value of supplies on hand at the beginning of a year is greater than the value at the end of that year, you should add the amount of the decrease to cash expenses and depreciation to calculate the amount of total expenses.

Classifying cash and non-cash revenue and expense items

It is important to accurately identify cash and non-cash revenue and expense items in order to develop an accurate income statement. Mark each item below with the appropriate label.

CR - Cash revenue

NR - Non-cash revenue

CE - Cash expense

NE - Non-cash expense

- _____ Proceeds from crop sales
- _____ Amount paid for purchased feed
- _____ Amount paid for seed
- _____ Increase in inventories
- _____ Increase in accounts payable
- _____ Amount paid for veterinary and medicine
- _____ Cash payment from government programs
- _____ Amount paid for fertilizer
- _____ Increase in accounts receivable
- _____ Increase in accrued expenses
- _____ Proceeds from custom work.
- _____ Proceeds from livestock sales
- _____ Amount paid for interest
- _____ Proceeds from the sale of livestock products
- _____ Depreciation

Calculating net farm Income

There are two methods for calculating net farm income: cash accounting and accrual accounting. It is important to understand the differences and how to calculate both. Build the following equations by filling in the blanks. Some terms will be used more than once.

Use the following terms for calculating net farm income:

Net farm income (accrual accounting)
Gross cash farm revenues
Net farm income from operations
Gain or loss on sale of farm capital assets
Cash farm expenses
Depreciation
Gross farm revenues
Non-cash expense adjustments
Net farm income (cash accounting)
Net cash farm income
Inventory adjustments

Net farm Income (cash accounting)

-	_____

-	_____

±	_____

Net farm Income (accrual accounting)

±	_____

-	_____

±	_____

±	_____

Test Yourself on Using the Balance Sheet for Management Decisions

Answer Key

Indicate whether each of the following statements is true (T) or false (F).

T F 1. An income statement is a summary of revenues generated during a specified period, usually one year, and the expenses associated with generating those revenues, with the difference being net farm income.

T F 2. Farm revenues consist of proceeds from current business operations and the gain or loss from the sale of farm real estate.

Comment: False. Gross farm revenues do not include the gain or loss from the sale of farm real estate. The gain or loss from the sale of farm real estate is added to, or subtracted from, net farm income from operations to calculate net farm income.

T F 3. Net cash farm income includes inventory adjustments.

Comment: False. Net cash farm income equals cash revenues minus cash expenses.

T F 4. You can calculate net farm income from operations using cash accounting by subtracting depreciation from net cash farm income.

T F 5. Depreciation is a cash expense.

Comment: False. Depreciation is a non-cash expense.

T F 6. Cash payments from government farm programs are considered farm revenue.

T F 7. There are two categories of farm expenses on an income statement using accrual accounting. Those categories are cash operating expenses and non-cash expenses.

T F 8. Cash outlays to purchase farm machinery are included on an income statement as a cash expense.

Comment: False. Cash outlays to purchase farm machinery are not included as expenses on an income statement. Instead, they are included as depreciation, which is a non-cash expense.

T F 9. Net cash farm income is calculated by subtracting cash expenses during the period (including cash outlays for farm real estate) from gross cash farm revenues.

Comment: False. Cash outlays to purchase farm real estate are not included as a cash expense on an income statement.

T F 10. One use of an income statement is to help explain changes in owner equity.

Example Situation

Farmer Jones has gross cash farm revenue for the year totaling \$100,000. His cash farm expenses for the year equal \$70,000. His depreciation for the year equals \$20,000. The value of his grain inventory increased from the beginning to the end of the year by \$10,000. He also purchased a tractor for \$30,000 during the year and paid cash for it. Using only the above information, match the amount to the correct category. A letter can be used more than once, and some letters might not be used.

Write the letter of the correct answer below for each item.

- | | | |
|--------------|--|--------------|
| <u> C </u> | 11. Net cash farm income | A. \$20,000 |
| <u> A </u> | 12. Net farm income from operations (accrual accounting) | B. \$10,000 |
| <u> B </u> | 13. Net farm income from operations (cash accounting) | C. \$30,000 |
| <u> D </u> | 14. Total expenses (cash accounting) | D. \$90,000 |
| <u> D </u> | 15. Total expenses (accrual accounting) | E. \$120,000 |

The answers to questions 11-15 are calculated as follows:

	Cash	Accrual
Gross cash farm revenue	\$100,000	\$100,000
+ <u>Increase in grain inventory</u>	<u>NA</u>	<u>\$ 10,000</u>
= Gross farm revenues	\$100,000	\$110,000
- <u>Cash farm expenses</u>	<u>\$ 70,000</u>	<u>\$ 70,000</u>
= Net cash farm income	\$ 30,000	NA
- <u>Depreciation</u>	<u>\$ 20,000</u>	<u>\$ 20,000</u>
= Net farm income from operations	\$ 10,000	\$ 20,000

Total expenses as calculated in this example, using both cash and accrual accounting, equal \$90,000 (\$70,000 cash farm expenses plus \$20,000 depreciation). The cash outlay for the tractor is not included as an expense.

Indicate whether each of the following statements is true (T) or false (F).

- F 16. To prepare an income statement using accrual accounting, you need a beginning and ending balance sheet
- F 17. An increase in the value of farm or ranch real estate not sold during the year should be included on the income statement as farm revenue when using accrual accounting.

Comment: False. A gain (or loss) is incurred when a capital asset is sold for more (or less) than the tax basis in the asset.

T F 18. Using accrual accounting, when the value of market livestock held for sale at the beginning of a period is less than the value at the end of that year, you should add the amount of the increase to cash revenues to calculate gross farm revenue.

T F 19. Using accrual accounting, when the value of accrued interest on a beginning balance sheet is less than the amount on an ending balance sheet, you should add the amount of the increase to cash expenses and depreciation to calculate the amount of total expenses.

T F 20. Using accrual accounting, when the value of supplies on hand at the beginning of a year is greater than the value at the end of that year, you should add the amount of the decrease to cash expenses and depreciation to calculate the amount of total expenses.

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CE - Cash expense

NE - Non-cash expense

<u>CR</u>	Proceeds from crop sales
<u>CE</u>	Amount paid for purchased feed
<u>CE</u>	Amount paid for seed
<u>NR</u>	Increase in inventories
<u>NE</u>	Increase in accounts payable
<u>CE</u>	Amount paid for veterinary and medicine
<u>CR</u>	Cash payment from government programs
<u>CE</u>	Amount paid for fertilizer
<u>NR</u>	Increase in accounts receivable
<u>NE</u>	Increase in accrued expenses
<u>CR</u>	Proceeds from custom work.
<u>CR</u>	Proceeds from livestock sales
<u>CE</u>	Amount paid for interest

<u>CR</u>	Proceeds from the sale of livestock products
<u>NE</u>	Depreciation

Calculating net farm Income

There are two methods for calculating net farm income: cash accounting and accrual accounting. It is important to understand the differences and how to calculate both. Build the following equations by filling in the blanks. Some terms will be used more than once.

Use the following terms for calculating net farm income:

Net farm income (accrual accounting)
 Gross cash farm revenues
 Net farm income from operations
 Gain or loss on sale of farm capital assets
 Cash farm expenses
 Depreciation
 Gross farm revenues
 Non-cash expense adjustments
 Net farm income (cash accounting)
 Net cash farm income
 Inventory adjustments

Net farm Income (cash accounting)

Gross cash farm revenues
 - Cash farm expenses
 = Net cash farm income
 - Depreciation
 = Net farm income from operations
 ± Gain/loss on sale of farm capital assets
 = Net farm income (cash accounting)

Net farm Income (accrual accounting)

Gross cash farm revenues
 ± Inventory Adjustments
 = Gross farm revenues
 - Cash farm expenses
 - Depreciation
 ± Non-cash expenses adjustments
 = Net farm income from operations
 ± Gain/loss on sale of farm capital assets
 = Net farm income (accrual accounting)